



HEALTHY MOTHERS – HEALTHY BABIES

Seafood Omega-3s in Pregnancy and Infancy

Pregnancy—Nutrients for Two

Pregnancy is a special time to nourish mothers and their developing babies. Both depend greatly on the mother's nutrition. Pregnancy increases the need for nearly all nutrients, but some nutrients must be available at specific times for the baby's optimal development. Several of these are most abundant in fish—selenium and iodine, for example—and one is naturally occurring almost exclusively in fish—the omega-3 fatty acid, DHA. These nutrients, along with other long-chain polyunsaturated fatty acids (EPA and arachidonic acid) are critical for the development of the baby's organs, especially the brain and eye.^{1,2} Maternal diets in most Western countries are low in DHA, so this nutrient deserves special dietary attention.³

DHA—Critical for Brain and Eye Development

DHA is an essential building block for the structure and function of the central nervous system, brain and retina of the eyes.⁴ It is the most abundant polyunsaturated fatty acid in the brain. Eating foods rich in DHA is especially important in the last three months of pregnancy and for the baby's first two years while the brain is developing.⁵ After that, the rate of brain and eye growth slows, but the need for DHA continues throughout childhood. DHA is important for visual function⁶ and enabling brain cells to relay messages to each other.⁷⁻⁹ This communication is critical for brain function.

Babies who obtain DHA from breast milk or DHA-supplemented infant formula may score better on developmental and visual tests compared with infants fed

formula without DHA,¹⁰ they also have more mature nervous systems. There are reports that infants with reduced brain DHA have lower attention span and brain processing speed compared with infants having higher DHA status.¹¹ Studies on the relationship between maternal DHA in pregnancy and early childhood cognition¹² suggest that targeted assessments around school age better reflect the benefits of the mother's intake of DHA and EPA in pregnancy.¹³ Some studies suggest that children who are well nourished in DHA are better able to learn and less likely to develop learning or behavioral abnormalities compared with children who have consumed little DHA.^{14,15} Moreover, the evidence suggests that most children consume very little seafood omega-3s and may receive insufficient for optimum brain development and performance.^{16,17}

Other Advantages of Maternal Fish and DHA Intake

A mother's consumption of fish or other source of DHA may enhance the infant's immune function. A recent review of research in this area found that most studies reported a lower occurrence of immune-based eczema, positive skin-prick tests and sensitization to egg or any food.¹⁸ Studies on this topic are diverse and inconsistent, so the authors' findings cannot be considered conclusive, but the results generally favor a lower risk of allergic disease. Higher DHA intakes may also increase the gestation time, reducing the risk of preterm delivery.¹⁹ Further, mothers whose intake of DHA is robust during pregnancy maintain higher stores of this nutrient herself.

DHA, docosahexaenoic acid. DHA is present naturally mainly in fish and shellfish, but may be added to some foods such as eggs. EPA, eicosapentaenoic acid, is another seafood (long-chain) omega-3 fatty acid, but it does not accumulate in brain. Arachidonic acid (ARA) is a long-chain omega-6 fatty acid readily available to the infant.

Where Do Mothers Get DHA?

Mothers, like all of us, obtain nearly all their DHA from food, mostly from eating fish and shellfish. Plants, except for some algae, do not contain DHA. Fatty fish such as salmon, rainbow trout, mackerel, herring, and sardines have the greatest amounts. A small amount of DHA can be made from certain seed oils (e.g., flax, canola, walnut oils), but the amounts produced are very small and unlikely to meet the developing infant's needs. The best way to ensure that the developing baby gets enough DHA is to eat fish, especially the fatty species. If women do not eat fish, they can obtain DHA from fish or algal oil capsules, DHA-supplemented eggs, and some fortified foods. Read the food ingredient label to find out if the product contains DHA or only plant sources of omega-3. Relying only on plant foods for omega-3s may not meet the infant's or mother's need for DHA.²⁰

Where Do Developing Babies Get DHA?

In the last three months of pregnancy, the mother transfers large quantities of nutrients, including DHA, to the fetus.²¹ Mothers who eat fish while they are pregnant and nursing ensure that their babies have enough DHA for proper brain and eye development. Because breast milk contains DHA the baby obtains it during nursing. Mothers who eat fish while they are breastfeeding have more DHA in their milk than mothers who do not eat fish.²² Thus, eating fish regularly during lactation can boost the DHA the infant receives and replenish the mother's stores.

If the mother does not eat seafood, the baby will try to meet its needs from the mother's own body stores. Whether the amount the baby obtains is enough for its needs depends on how well nourished the mother is. Mothers who do not eat any fish have less DHA available for their babies and have less stored DHA.

DHA in the First 6 Months of Life

The brain grows fairly rapidly in the first two years after birth, continuing more slowly after that.²³ For that reason, foods with DHA are important in early life. Breastfeeding ensures that the infant obtains DHA from mother's milk. When breastfeeding stops, infants can obtain DHA from DHA-supplemented infant formula and foods with DHA, such as fish and egg yolk.

Mothers who use infant formula should choose one that contains DHA and ARA*. These fatty acids are now added to most, but not all, infant formulas, so check the label to see that DHA is present.

Preterm and Low Birthweight Babies

Babies born before 37 weeks of gestation and newborns weighing less than 5½ pounds (2,500 grams) are likely to fall short of the DHA they need for optimum development. The shorter the gestation time, the lower the blood levels of both DHA and ARA in the infant.²⁴ This is because they have not had enough time to obtain sufficient DHA from their mothers and have no DHA stores. Preterm and very small babies usually receive special infant formula until they can breastfeed or have grown enough to take standard infant formula. It is vital for these tiny babies to have formula with DHA and ARA to ensure proper brain and eye development.²⁵ Studies have shown that preterm and low birthweight babies develop better and have fewer health problems when given formula with DHA compared with babies fed unsupplemented formula.

Providing DHA to Toddlers and Young Children

After 6 months of age when solid foods are introduced, infants can obtain DHA from egg yolks that contain this nutrient as marked on the label. At about one year of age or earlier, children

can safely eat canned or fresh fish such as salmon or light tuna. Foods and omega-3 supplements designed for toddlers and young children that contain EPA and DHA are appearing in the marketplace, providing more choices.

Is Eating Fish Safe?

Some women have been frightened away from eating fish because of worries about mercury and other contaminants. Although all fish and shellfish contain tiny amounts of contaminants, Alaska fish and shellfish have among the lowest levels of all fish. Recent analyses from the state of Alaska confirm that Alaska salmon, cod and pollock present negligible health risks from mercury and other contaminants. The U.S. Food and Drug Administration (FDA) recently revised its advice to pregnant and nursing women and children, urging them to eat more fish²⁶ but to avoid eating shark, swordfish, tilefish, and king mackerel because of their mercury content.²⁷ However, women and children can safely consume Alaska fish and get the important nutrients they need without concern about health dangers from contaminants. Nearly all science-based assessments have concluded that the benefits of eating fish far outweigh any potential risks.²⁸ Others have noted that the children of mothers who eat more than the recommended amounts of fish have developmental advantages over children whose mothers do not eat fish.¹⁵ As the Food and Agriculture Organization of the United Nations expressed it, "fish consumption lowers the risk of suboptimal neurodevelopment in the offspring compared with not eating fish."²⁹

Mercury is potentially toxic to the developing fetus if the mother is exposed to high levels during pregnancy. However, no child in the U.S. has ever developed detrimental problems because the mother ate fish during pregnancy or lactation.³⁰ Harmful effects have only been seen with accidental mercury poisonings or the consumption of pilot whale.³¹ In fact, the children of mothers who ate 2 to 10 times as much fish as American mothers usually consume during pregnancy scored higher on an array of cognitive tests compared with children whose mothers avoided fish.¹⁵ One explanation for this observation is that fish and shellfish contain plenty of selenium, a nutrient that interacts with mercury to render it nontoxic.³² In most fish, there is more selenium than mercury, so that mercury does not harm the fetus or infant, yet enough selenium remains to support the development of the nervous system.

Eating fish and shellfish during pregnancy and lactation provides the DHA that is vitally important to the optimum development of the infant's nervous system, brain and eye. Seafood provides several other important nutrients needed for healthy development—protein, selenium and iodine—and is a safe, wholesome and wise choice for women and their children.

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MADRES SANAS: BEBÉS SANOS

Los omega-3 de pescados y mariscos durante el embarazo y la lactancia

fórmula sin DHA.¹⁰ También tienen un sistema nervioso más desarrollado. Hay informes que indican que los infantes con menor DHA en el cerebro tienen un menor rango de atención y velocidad de procesamiento cerebral, a comparación de los infantes con mayor cantidad de DHA.¹¹ Algunos estudios sobre la relación entre el consumo de DHA por parte de la madre durante el embarazo, y la capacidad cognitiva en la infancia temprana.¹², sugiere que las evaluaciones focalizadas alrededor de la edad escolar reflejan mejor los beneficios del consumo de DHA y EPA por parte de la madre durante el embarazo.¹³ Los niños que están bien alimentados con DHA son más aptos de aprender y tienen menos probabilidades de padecer de trastornos de aprendizaje o del comportamiento en comparación con niños que han consumido poco DHA.¹⁴ Además, los indicios sugieren que la mayoría de los niños consumen muy pequeñas cantidades de omega-3 proveniente de peces y mariscos y puede que no reciban lo suficiente para un óptimo desarrollo cerebral.¹⁶⁻¹⁷

Otras ventajas del consumo de pescado y DHA por parte de la madre

El consumo de pescado u otras fuentes de DHA por parte de la madre, puede mejorar la función del sistema inmunológico del infante. Se encontró recientemente en una revisión de investigaciones en esta área que la mayoría de los estudios reportó una menor ocurrencia de ecema por sistema inmunológico, pruebas positivas de detección de alergias en piel y sensibilización al huevo o a cualquier alimento.¹⁸ Los estudios en este tema son muy diversos e inconsistentes, por lo que los hallazgos de los autores no pueden considerarse como algo concluyente, sin embargo, los resultados generalmente favorecen un menor riesgo de sufrir alergias. El mayor consumo de DHA también podría aumentar el tiempo de gestación, reduciendo el riesgo de parto prematuro.¹⁹ Además, las madres con un buen consumo de DHA mantienen para sí mismas mayores reservas de este nutriente.

DHA es la sigla en inglés de ácido docosahexaenoico. El DHA está presente de manera natural principalmente en peces y mariscos, pero puede ser agregado a algunos alimentos como los huevos. EPA, el ácido eicosapentaenoico, es otro ácido graso omega-3 (de cadena larga) proveniente de peces y mariscos, pero no se acumula en el cerebro. El ácido araquidónico (ARA) es un ácido graso omega-6 de cadena larga del cual el recién nacido puede disponer fácilmente.

¿De dónde obtienen las madres el DHA?

Las madres, como todos nosotros, obtienen casi todo su DHA de los alimentos, sobre todo al comer pescado y mariscos. Las plantas, con excepción de las algas, no contienen DHA. Los peces grasos como el salmón, la trucha arcoíris, la caballa, el arenque y las sardinias tienen las mayores cantidades. Se puede elaborar una pequeña cantidad de DHA de determinados aceites de semillas (p. ej., los aceites de lino, canola y nuez), pero las cantidades producidas son muy pequeñas y es poco probable que satisfagan las necesidades del feto en desarrollo. La mejor manera de garantizar que el feto en desarrollo reciba suficiente DHA es comer pescado, especialmente las especies grasas. Si las mujeres no comen pescado, pueden

obtener DHA de capsulas de pescado o de cápsulas de aceite de algas, huevos enriquecidos con DHA y algunos alimentos fortificados. Lea la etiqueta de ingredientes de los alimentos para averiguar si el producto contiene DHA o sólo los omega-3 de origen vegetal. El basarse sólo en alimentos de origen vegetal para obtener los omega-3 puede que no satisfaga la necesidad del feto o de la madre con respecto al DHA.²⁰

¿De dónde obtienen el DHA los fetos en desarrollo?

En los últimos tres meses del embarazo la madre le traspasa al feto grandes cantidades de elementos nutritivos, inclusive el DHA.²¹ Las madres que consumen pescado durante el embarazo y la lactancia aseguran que sus hijos obtienen suficiente DHA para un adecuado desarrollo del cerebro y los ojos. Dado que la leche materna contiene DHA, el recién nacido lo obtiene durante la lactancia. Las madres que comen pescado durante la lactancia tienen más DHA en su leche en comparación con las madres que no comen pescado.²² Por consiguiente, comer pescado con regularidad durante la lactancia puede aumentar el DHA que recibe el recién nacido y reponer las reservas de la madre.

Si la madre no come ni pescado ni mariscos, el feto tratará de satisfacer sus necesidades de las reservas propias del cuerpo de la madre. Si la cantidad que el feto obtenga será suficiente para sus necesidades dependerá de lo bien alimentada que esté la madre. Las madres que no comen pescado tienen menos DHA disponible para sus fetos y tienen menos DHA almacenado.

El DHA en los primeros 6 meses de vida

El cerebro crece con bastante rapidez en los dos primeros años después de nacer, continuando con mayor lentitud de allí en adelante.²³ Por tal motivo los alimentos con DHA son importantes en las etapas tempranas de la vida. La lactancia materna garantiza que el recién nacido obtenga DHA de la leche de la madre. Cuando se detiene la lactancia, los recién nacidos pueden obtener el DHA de leche de fórmula para recién nacidos enriquecida con DHA y de alimentos que contengan DHA como el pescado y la yema del huevo.

Las madres que usan la leche de fórmula deben escoger una que contenga DHA y ARA*. Hoy en día estos ácidos grasos son agregados a la mayoría, aunque no a todos, los preparados para lactantes, así que revise la etiqueta para ver si está presente el DHA.

Los prematuros y de bajo peso al nacer

Los prematuros que nacen antes de las 37 semanas de gestación y los recién nacidos que pesan menos de 5½ libras (2,500 gramos) probablemente han obtenido menos DHA del que necesitan para su óptimo desarrollo. Mientras menos tiempo de gestación haya, menores niveles de DHA y ARA hay tiene el bebé en sangre.²⁴ Esto se debe a que no han tenido tiempo suficiente para obtener suficiente DHA de sus madres y no tienen reservas de DHA. Los prematuros y los recién nacidos de poco peso y tamaño por lo general reciben fórmulas

infantiles especiales hasta que puedan ser amamantados o hayan crecido lo suficiente para tomar la fórmula normal para recién nacidos. Es vital que estos recién nacidos de poco peso y tamaño tomen la fórmula con DHA y ARA para garantizar un apropiado desarrollo del cerebro y los ojos.²⁵ Los estudios han demostrado que los prematuros y de bajo peso al nacer desarrollan mejor y tienen menos problemas de salud cuando se les da fórmula con DHA en comparación con los que son alimentados con fórmula no enriquecida.

Cómo proporcionar DHA a los niños de primera infancia y preescolares

Después de los 6 meses de edad, cuando se introducen los alimentos sólidos, los niños pueden obtener DHA de las yemas de huevo que contienen este elemento nutritivo según esté marcado en la etiqueta. Alrededor de un año de edad o menores, los niños pueden comer pescado fresco o enlatado, como el salmón o el atún claro. Están apareciendo en el mercado alimentos y suplementos de omega-3 que contienen EPA y DHA dirigidos a los niños de primera infancia y preescolares que están aprendiendo a caminar, así ofreciéndoles más opciones.

¿Es arriesgado comer pescado?

Algunas personas se han atemorizado con respecto a comer pescado debido a preocupaciones sobre el mercurio y otros contaminantes. Aunque todos los peces y mariscos contienen pequeñas cantidades de contaminantes, los peces y mariscos de Alaska tienen los niveles más bajos de todos los peces. Análisis recientes del estado de Alaska confirman que el salmón, el bacalao y el abadejo de Alaska presentan riesgos de salud insignificantes derivados del mercurio y otros contaminantes. Para mayor seguridad, la Administración de Alimentos y Medicamentos de EE. UU. (FDA) actualizó recientemente su recomendación para las mujeres embarazadas y lactando, y para niños pequeños, para motivarlos a que consuman más pescado,²⁶ pero que eviten comer tiburón, pez espada, pez azulejo y caballa gigante debido a su contenido de mercurio.²⁷ No obstante, mujeres y niños pueden consumir pescado de Alaska y obtener los importantes elementos nutritivos que necesitan sin tener que preocuparse acerca de los peligros a la salud por los contaminantes. Casi todas las evaluaciones fundamentadas científicamente han concluido que los beneficios de comer pescado superan con creces cualquier posible riesgo.²⁸ Otros han observado que los niños de madres que consumen más de la cantidad recomendada de pescado tienen ventajas evolutivas en comparación con niños cuyas madres no comen pescado.¹⁵ De acuerdo con lo que expresa la FDA, "el consumo de pescado reduce el riesgo del desarrollo neurológico subóptimo de la descendencia, al compararlo con los casos en los que no se consume pescado".²⁹

El mercurio es potencialmente tóxico para el feto en desarrollo si la madre es expuesta a altos niveles durante el embarazo. Sin embargo, ningún niño en EE. UU. ha tenido efectos nocivos porque la madre haya comido pescado durante el embarazo o la lactancia.³⁰ Los efectos dañinos sólo se han visto en

asociación con intoxicaciones accidentales con mercurio o el consumo del calderón negro.³¹ De hecho, los hijos de las madres que comieron de dos a diez veces más cantidad de pescado que lo que consumen las madres estadounidenses durante el embarazo tuvieron una mayor puntuación en una serie de pruebas cognitivas en comparación con niños cuyas madres evitaron el pescado.¹⁵ Una explicación para esta observación es que los peces y los mariscos contienen una cantidad importante de selenio, un elemento nutritivo que interactúa con el mercurio para quitarle su toxicidad.³² En la mayoría de los peces hay más selenio que mercurio, por lo que el mercurio no causa daño al feto o al recién nacido y sin embargo queda suficiente selenio para ayudar al desarrollo del sistema nervioso.

Comer pescado y mariscos durante el embarazo y la lactancia proporciona DHA, que es de vital importancia para el óptimo desarrollo del sistema nervioso, el cerebro y los ojos del niño. Los peces y los mariscos ofrecen otros elementos nutritivos importantes que se necesitan para el crecimiento del cerebro y la función cerebral y, salvo las cuatro especies antes mencionadas, son una opción segura, sana y acertada para las mujeres y sus hijos.

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